CLAIMS

ADD A17

1. A device for retaining a graft on an artery, comprising a first part for contacting the graft and a second part for contacting the artery when the device is pierced radially through the graft and the artery wall, the first and second parts being connected by a resilient member, wherein the resilient member biases the first and second parts towards each other into a retaining configuration such that in use the artery and the graft are retained together between the first and second parts of the device, and wherein the first and second parts are moveable into an open configuration in which they are further apart than in the retaining configuration to enable the device to be conveyed along an artery.

2. A device as claimed in claim 1, wherein in the open configuration the first part, the resilient member and the second part are disposed substantially on an axis.

3. A device as claimed in claim 1 or 2, wherein in the retaining configuration at least one of the first and second parts forms an arcuate shape.

4. A device as claimed in any preceding claim, wherein at least a portion of at least one of the first and second parts is sharpened to enable said part to pierce a graft and an artery.

5. A device as claimed in claim 4, wherein both the first and the second parts are so sharpened.

6. A device as claimed in any preceding claim, wherein the device is formed from a wire.

7. A device as claimed in any preceding claim, wherein the device is formed from a shape memory alloy.

8. A device as claimed in any preceding claim, wherein the device has a plurality of first parts.

9. A device as claimed in any preceding claim, wherein the device has a plurality of second parts.

10. A device as claimed in claim 9, wherein the device has equal numbers of first and second parts.

11. A device as claimed in any of claims 8 to 10, wherein said plurality of parts are integral or welded together.

12. A device as claimed in claim 10, which is formed of a plurality of sets, each set comprising a first part, a resilient member and a second part, wherein the plurality of sets are linked together by a weld, a sheath, a bush, a crimp or by wire.

13. A device for supporting a catheter within an artery or arterial graft, the device having a locating member for locating the device with respect to the catheter and at least one support member for supporting the catheter on the inner wall of the artery or graft, wherein the support member and the locating member are connected by a resilient member which biases the support member towards the artery wall.

14. A device as claimed in claim 13, wherein the locating member is adapted to fit axially inside a catheter.

15. A device as claimed in claim 14, wherein the support member and the locating member are moveable into a position in which the support member, the resilient member and the locating member are disposed substantially on an axis, to enable the device to be conveyed along a catheter.

16. A device as claimed in any of claims 13 to 15, which device has a plurality of support members, each of which is connected to the locating member by a resilient member.

17. A device as claimed in claim 16, wherein each support member is connected to at least one other support member by the end of the support member distal to the locating member.

18. A device as claimed in claim 17, comprising at least one resilient wire disposed in a loop with the ends of the wire being locatable in an end of a catheter, wherein in use the sides of the loop contact the artery or graft to support the catheter within the artery or graft.

19. A device as claimed in any of claims 16 to 18, wherein said plurality of support members are disposed such that in use the device supports the catheter substantially centrally within an artery.

20. A device as claimed in any of claims 13 to 19, wherein each support member has a non-traumatic contact surface for contacting the artery wall.

21. A device as claimed in any of claims 13 to 20 which is formed from a shape memory alloy or a super elastic material.

22. The use of a device as claimed in any of claims 13 to 21 to support a catheter within a conduit.

23. A method for delivering a device as claimed in any of claims 1 to 12 to a locus of a conduit, comprising the steps of moving said first and second part of the device into said open configuration, inserting the device into a catheter, positioning an end of the

catheter at the locus, and moving the device down the catheter until the device emerges from said end of the catheter at the locus.

24. A method as claimed in claim 23, wherein said end of the catheter is angled radially relative to the axis of the catheter.

25. A method as claimed in claim 23 or 24, additionally comprising the step of housing the catheter within a sheath catheter.

26. A method as claimed in any of claims 23 to 25, comprising the step of inserting a plurality of said devices into the catheter, and inserting a pushing element sufficiently far into the catheter to contact and apply pressure to the device closest to the pushing element in order to cause a device to be ejected from the end of the catheter distal to the pushing element at the locus of the conduit.

27. A method as claimed in any of claims 23 to 26, additionally comprising the step of employing a device as claimed in any of claims 13 to 21 to support the catheter within the conduit.

28. A device for dilating an artery when delivered translumenally to a locus of an artery by means of a catheter, having a locating member for locating the device with respect to the catheter and a plurality of dilating members, each of which is connected to the locating member by a resilient member which biases the dilating member towards and into contact with the inner artery wall, wherein in use the resilient members cause the dilating members to apply outward pressure to the inner artery wall in order to dilate the artery.

29. A device as claimed in claim 28, wherein the locating member is adapted to fit axially inside a catheter.

30. A device as claimed in claim 28 or 29, wherein the members and the locating member are moveable into a position in which the locating member, the resilient members and the dilating members are disposed substantially on an axis, to enable the device to be conveyed along a catheter.

31. A device as claimed in any of claims 28 to 30, wherein each dilating member is connected to at least one other dilating member by the end of the dilating member distal to the locating member.

32. A device as claimed in any of claims 28 to 31, comprising at least one resilient wire disposed in a loop with the ends of the wire being locatable in an end of a catheter, wherein in use the sides of the loop contact the inner artery wall and apply outward pressure thereto in order to dilate the artery.

33. A device as claimed in any of claims 28 to 32, wherein said plurality of dilating members are distributed equally radially about the locating member.

34. A device as claimed in any of claims 28 to 33, additionally comprising means for reducing the distance between the end of each dilating member distal to the locating member and the end of said dilating member proximate the locating member, thereby causing the central section of said dilating member to bow radially outwards with respect to the locating member in order to apply increased outward pressure on the inner wall of the artery when the device is in use.

35. A device as claimed in claim 34, wherein said means is an additional connection between the end of each dilating member distal to the locating member and the locating member.

36. A device as claimed in any of claims 28 to 35, wherein each dilating member has a non-traumatic contact surface for contacting the artery wall.

37. A device as claimed in any of claims 28 to 36 which is formed from a shape memory alloy or a super elastic material.

38. A device for retaining a graft on an artery, comprising an elongate member formed of a resilient material which biases said member into a helical configuration, at least one end of the member being sharpened to enable the member to pierce through the graft and the artery wall, wherein the member is moveable into an open configuration in which it can be conveyed along an artery.

39. A device as claimed in claim 38, wherein in the helical configuration the device has less than 10 turns.

40. A device as claimed in claim 38 or 39, in which the diameter of the helix formed by the member is no less than about seven times the cross-sectional diameter of the member.

41. A device as claimed in any of claims 38 to 40, wherein the member is formed from a shape memory alloy.

42. A device as claimed in any of claims 38 to 41, wherein in said open configuration the device is substantially straight.

43. A method for delivering a device as claimed in any of claims 38 to 42 to a locus of a conduit, comprising the steps of moving said helical member into said open configuration, inserting the device into a catheter, positioning an end of the catheter at the locus, and moving the device down the catheter until the device emerges from said end of the catheter at the locus.

44. A method as claimed in claim 43, wherein said end of the catheter is angled radially relative to the axis of the catheter.

45. A method as claimed in claim 43 or 44, additionally comprising the step of housing the catheter within a sheath catheter.

46. A method as claimed in any of claims 43 to 45, comprising the step of inserting a plurality of said devices into the catheter, and inserting a pushing element sufficiently far into the catheter to contact and apply pressure to the device closest to the pushing element in order to cause a device to be ejected from the end of the catheter distal to the pushing element at the locus of the conduit.

47. A method as claimed in any of claims 43 to 46, additionally comprising the step of employing a device as claimed in any of claims 13 to 21 to support the catheter within the conduit.

48. A kit comprising at least two of a device as claimed in any of claims 1 to 12, a device as claimed in any of claims 13 to 21, a device as claimed in any of claims 28 to 37, and a device as claimed in any of claims 38 to 42.

49. The use of a device as claimed in any of claims 28 to 37 to dilate the walls of an artery, a vein or a graft.

50. The use of a device as claimed in any of claims 1 to 12 or a device as claimed in any of claims 38 to 42 to retain a graft on the walls of an artery or vein.